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Large numbers of immature shells were secured in order to study the development of the shell and its sculpture. Certain shells are smooth or without sculpture in the early stages, some remain smooth, others develop nodules or spines either early or late in life, or even develop a sculpture and later lose it. Other shells are spinose from the start and remain so. The loss of sculpture occurs largely in one locality, in the vicinity of which drainage changes have probably occurred in relatively recent geological time.

In the general discussion and summary a brief review is given of inheritance in molluscs, as Mendelian inheritance applies to many of their characters. The results of recent experimental breedings are applied to the interpretation of the variations of these shells. Other topics discussed are agencies and means of dispersal, longitudinal distribution in streams, causes of variation, geographic range and variation of each of the forms of *Io*, the migration of the environment and migrations and relationships of the various forms. The illustrations include figures of the shells, showing the ontogeny of shell sculpture, and samples of the shell population at representative localities. Diagrams and tables illustrate the quantitative relations and there are several maps. The great diversity seen in these shells is probably related to the complex mixtures of many strains which has been made possible by the complex stream history.

REPORT OF THE AUTUMN MEETING

Prepared by the Home Secretary

The Autumn Meeting of the Academy was held in the American Museum of Natural History at New York City, on November 15, 16, 17, 1915.

Forty-eight members were present, as follows: C. G. Abbot, Becker, Boas, Boltwood, Britton, Castle, Cattell, Chittenden, W. B. Clark, F. W. Clarke, J. M. Clarke, Conklin, Coulter, Crew, Cross, Davenport, Day, Donaldson, Hague, Harper, Harrison, Hillebrand, Holmes, Howell, Iddings, Lindgren, Loeb, Lusk, Mall, Mendel, Michelson, Morgan, Morse, A. A. Noyes, H. F. Osborn, T. B. Osborne, Pickering, Ransome, Reid, Richards, Rosa, Schuchert, Theobald Smith, Van Hise, Walcott, Webster, Wheeler, H. S. White.

BUSINESS SESSION.

The Home Secretary announced that since the Annual Meeting in April the Academy had lost by death two members, John Ulric Nef, elected 1904, who died on August 13, 1915, and Frederick Ward Putnam, elected 1885, who died on August 18, 1915; also two foreign associates, Theodor Boveri, elected 1913, who died on October 15, 1915, and Paul Ehrlich, elected 1904, who died on August 20, 1915.

The Home Secretary made also the following announcements: That Mr. Edwin B. Frost had been elected Chairman of the Directors of the Bache Fund and Mr. Arthur Gordon Webster had been elected to succeed Mr. Ira Remsen.

That Mr. Theodore William Richards had been elected to succeed Mr. Ira Remsen as a member of the Directors of the Wolcott Gibbs Fund.

That the ad interim appointments of Acting Chairmen of the Sections of the Academy were as follows:

MATHEMATICS: E. H. MOORE, Acting Chairman.
ASTRONOMY: G. C. COMSTOCK, Acting Chairman.
PHYSICS AND ENGINEERING: R. S. WOODWARD, Acting Chairman.
CHEMISTRY: A. A. NOYES, Acting Chairman.
GEOLOGY AND PALEONTOLOGY: ARNOLD HAGUE, Acting Chairman.
BOTANY: J. M. COULTER, Chairman, 1915–1918.
ZOOLOGY AND ANIMAL MORPHOLOGY: E. G. CONKLIN, Acting Chairman.
PHYSIOLOGY AND PATHOLOGY: R. H. CHITTENDEN, Acting Chairman.
ANTHROPOLOGY AND PSYCHOLOGY: W. H. HOLMES, Acting Chairman.

That the following members were appointed an Auditing Committee to audit the accounts of the Treasurer in accordance with Rule V. 5.

ARTHUR L. DAY WILLIAM H. DALL, Chairman F. W. CLARKE

That the division of the members of the Board of Editors of the Proceedings into three groups, one-third of them retiring annually, in accordance with Rule V. 1, was approved as follows:

Dec. 1, 1916	Dec. 1, 1917	Dec. 1, 1918
W. B. CANNON	E. G. CONKLIN	J. J. ABEL
J. McK. CATTELL	C. B. DAVENPORT	J. M. CLARKE
J. M. COULTER	E. B. FROST	J. P. IDDINGS
SIMON FLEXNER	W. H. HOLMES	R. A. MILLIKAN
R. G. HARRISON	E. H. MOORE	ALEXANDER SMITH

The Committee on the Henry Draper Fund recommended to the Academy that the following appropriations be made from available income: Four hundred dollars to Doctor Frank Schlesinger, Director of the Allegheny Observatory, to be applied toward the construction of a machine for measuring astronomical photographs; three hundred dollars to Doctor Joel Stebbins, Director of the University of Illinois Observatory, to be used in the further development of the photo-electric photometer and its application to the study of variable stars; two hundred dollars, to be applied toward the expense of publishing the Proceedings of the National Academy.

SCIENTIFIC SESSIONS

A public lecture was given on November 15 by Michael I. Pupin, of Columbia University, on Problems of Aerial Transmission.

Three public scientific sessions were held on November 16 and 17 at which the following papers were presented:

1. EDWIN G. CONKLIN: Nature of cell polarity.
2. W. E. CASTLE: Is selection or mutation the more important agency in evolution?
3. A. E. VERRILL: Inheritance of clubbed feet through five known generations; inheritance of abnormal or defective thumbs through four known generations.

4. CHAS. B. DAVENPORT: Heredity of stature.

5. E. C. MACDOWELL (introduced by Chas. B. Davenport): Parental alcoholism and mental ability—A comparative study of habit formation.

6. JAMES B. MURPHY (introduced by Jacques Loeb): Rôle of the lymphocytes in resistance to cancer.

7. GRAHAM LUSK: The calorimeter as an interpreter of life processes.

8. T. B. OSBORNE and LAFAYETTE B. MENDEL: The resumption of growth after failure to grow.

9. W. H. HOWELL: Ultramicroscopic studies of the fibrin-gel.

10. C. WILLIAM BEEBE (introduced by Henry Fairfield Osborn): Origin of the flight of birds.

11. FRANK M. CHAPMAN (introduced by Henry Fairfield Osborn): Ornithological survey of the Andies and Western Coast of South America.

12. DOUGLAS HOUGHTON CAMPBELL: Treubia.

13. MARSHALL A. HOWE (introduced by N. L. Britton): Fossil calcareous algæ from the Panama Canal Zone with reference to reef-building algae.

14. A. B. STOUT (introduced by N. L. Britton): Sterility in plants and its inheritance.

15. J. N. ROSE (introduced by N. L. Britton): Recent explorations in the cactus deserts of South America.

16. GEORGE H. SHULL (introduced by Chas. B. Davenport): Some factors affecting the inheritance ratios in shepherd's purse.

17. HERBERT M. RICHARDS (introduced by R. A. Harper): The respiratory ratio of cacti in relation to their acidity.

18. R. A. HARPER: Some studies in morphogenesis.

19. HERBERT S. JENNINGS: Can we observe organic evolution in progress?

20. JOHN M. COULTER: Orthogenesis in plants.

21. THEODORE W. RICHARDS: Investigations recently conducted in the Wolcott Gibbs Memorial Laboratory.

22. B. B. BOLTWOOD: The life of radium.

23. ALFRED G. MAYER and ROBERT S. WOODWARD (by title): The biography of Alfred Marshall Mayer.

24. G. C. ABBOT: The solar radiation and its variability.

25. A. G. WEBSTER: Experiments and theory of conical horns; instruments for measurements and sound; an instrument for finding the direction of a fog-signal.

26. EDWARD C. PICKERING: The New Draper Catalogue.

27. HENRY NORRIS RUSSELL (introduced by Edward C. Pickering): On the albedo of the moon and planets.

28. GEORGE F. BECKER: A possible origin for some spiral nebulae.

29. L. A. BAUER (introduced by R. S. Woodward): Concomitant changes in the earth's magnetism and solar radiation.

30. FRED E. WRIGHT and J. C. HOSTETTER (introduced by Arthur L. Day): Experiments on the mean free path of gases; observations on Wood's one-dimensional gas.

31. JAMES KENDALL (introduced by Alexander Smith): The water correction in conductivity determinations.

32. HENRY FAIRFIELD OSBORN: Extremes of adaptation in carnivorous dinosaurs, tyrannosaurus and ornithomimus.

33. C. K. LEITH (introduced by C. R. Van Hise): The influence of certain minerals on the development of schists and gneisses.

34. W. M. DAVIS: Glacial sculpture of the Mission Range, Montana.

35. WALDEMAR LINDGREN: Crystallization of quartz veins.

36. GEORGE P. MERRILL (introduced by Arthur L. Day): The minor constitutents of meteorites.

37. E. W. HILGARD: A peculiar clay from near the City of Mexico.